CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/WNo. 12/AN/GSB-1/Gradation/2014-15 Date : 30.04.2014

GRADATION FOR GSB (CLOSE GRADED)
IS : 2720 (Part - 4)

Client : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Agency : **Mr. Ashwathnarayana,** Contractor, Bangalore.

Name of Work : Improvements to road & drains at Abbigere near Old Watch Factory in Ward No. 12 in Shettyhalli Sub Division, BBMP, Bangalore.

Reference : BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 28.04.2014

Date of Testing : 30.04.2014

Sample Source : GSB, Mix plant Bangalore **Oven Dry Wt (gm) :** 25970

TABLE – 1

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specified Limits
75.0	0	0	0.00	100	100
53.0	1672	1672	6.44	93.56	80-100
26.50	4845	6517	25.09	74.91	55-90
9.50	3892	10409	40.08	59.92	35-65
4.75	4324	14733	56.73	43.27	25-55
2.36	4968	19701	75.86	24.14	20-40
0.425	3021	22722	87.49	12.51	10-25
0.075	1989	24711	95.15	4.85	3-10
PAN	1259				
Total	25970				

Remarks: Satisfies MORTH Specifications as per Table 400-1, Grading I

Note:

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23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

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Reference : BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 28.04.2014

Date of Testing : 30.04.2014

Sample Source : GSB, Mix plant Bangalore

As per MORTH Table : 400-01

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit, %	21.70	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

Remarks: Satisfies MORTH Specifications as per Table 400-1, Grading I

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02.05.2014

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

Agency : **Mr. Ashwathnarayana,** Contractor, Bangalore.

Name of Work : Improvements to road & drains at Abbigere near Old Watch Factory in Ward No. 12 in Shettyhalli Sub Division, BBMP, Bangalore.

Reference : BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 28.04.2014

Date of Testing : 02.05.2014

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **25690**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	975	975	3.8	96.2	95-100
22.4	6512	7487	29.1	70.9	60-80
11.2	5216	12703	49.4	50.6	40-60
4.75	4532	17235	67.1	32.9	25-40
2.36	3627	20862	81.2	18.8	15-30
0.600	1958	22820	88.8	11.2	8-22
0.075	2485	25305	98.5	1.5	0-8

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4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
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Job No.: CTCE/BBMP/WNo. 12/AN/WMM/AIV/2014-15

02.05.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Mr. Ashwathnarayana,** Contractor, Bangalore.
Name of the Work	Improvements to road & drains at Abbigere near Old Watch Factory in Ward No. 12 in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 28.04.2014
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	02.05.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Trial No. 3	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	374	376	379	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	81	83	82	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	293	293	297	
4	Aggregate Impact value = percent fines	21.66	22.07	21.64	
	100* (W_2/W_1)%				21.79

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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4th Block, Shakthiganapathinagara,
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Job No.: CTCE/BBMP/WNo. 12/AN/WMM/S-T/2014-15 02.05.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Mr. Ashwathnarayana,** Contractor, Bangalore.
Name of Work	Improvements to road & drains at Abbigere near Old Watch Factory in Ward No. 12 in Shettyhalli Sub Division, BBMP, Bangalore.
Reference	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 28.04.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	02.05.2014

Result : Flakiness Index = **12.98%**

Elongation Index = **13.86%**

Result : Combined Flakiness & Elongation index 26.84%

Comments:

→ Maximum allowable Flakiness & Elongation Index for Wet mix Macadam is 30%

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23/14, 7th Cross, 3rd Stage,
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Bangalore-560079.

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#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
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JobNo: CTCE/BBMP/WNo. 12/AN/BC/Bitumen/2014-15 12.05.2014

BITUMEN CONTENT DETERMINATION OF BITUMINOUS CONCRETE MIX

AASHTO T 164

CLIENT	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. Ashwathnarayana,** Contractor, Bangalore.
NAME OF THE WORK	Improvements to road & drains at Abbigere near Old Watch Factory in Ward No. 12 in Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 28.04.2014
SAMPLE I/D	Roads in Abbigere, Ward No. 12
DATE OF TESTING	12.05.2014

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BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	26.00
7. Bitumen content in %	5.00	5.20
8. Average	5.10	

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JobNo: CTCE/BBMP/WNo. 12/AN/BC/Gradation/2014-15 12.05.2014

BITUMEN GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

AASHTO T 30

CLIENT	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Mr. Ashwathnarayana,** Contractor, Bangalore.
NAME OF THE WORK	Improvements to road & drains at Abbigere near Old Watch Factory in Ward No. 12 in Shettyhalli Sub Division, BBMP, Bangalore.
REFERENCE	BBMP/AEE/SSD/DZ/PR/2014-15 Dated: 28.04.2014
SAMPLE I/D	Roads in Abbigere, Ward No. 12
DATE OF TESTING	12.05.2014

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	47.53	10.01	10.01	89.99	79-100
9.5	37.89	7.98	17.98	82.02	70-88
4.75	63.24	13.31	31.30	68.70	53-71
2.36	74.12	15.60	46.90	53.10	42-58
1.18	56.28	11.85	58.75	41.25	34-48
0.6	64.95	13.67	72.42	27.58	26-38
0.3	38.26	8.05	80.48	19.52	18-28
0.15	27.86	5.87	86.34	13.66	12-20
0.075	37.42	7.88	94.22	5.78	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	35.95	7.58	7.58	92.42	79-100
9.5	46.25	9.76	17.34	82.66	70-88
4.75	75.49	15.93	33.27	66.73	53-71
2.36	62.35	13.15	46.42	53.58	42-58
1.18	79.85	16.85	63.27	36.73	34-48
0.6	43.15	9.10	72.37	27.63	26-38
0.3	32.18	6.79	79.16	20.84	18-28
0.15	22.68	4.78	83.95	16.05	12-20
0.075	45.28	9.55	93.50	6.50	4-10

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